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Series 1
Série des 1

WITHDRAWAL

October 2011

Selected standards in the series Paints, pigments and related products

These CGSB standards and National Standards of Canada are hereby withdrawn due to limited use and support for their revision.

The Standards Council of Canada requires that accredited Standards Development Organizations, such as the CGSB, regularly review a consensus Standard to determine whether to re-approve, revise or withdraw. The review cycle is normally five years from the publication date of the latest edition of the Standard.

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RETRAIT

Octobre 2011

Sélection de normes de la série Peintures, pigments et produits connexes

Ces normes de l'ONGC et ces Normes nationales du Canada sont retirées par le présent avis en raison de leur utilisation limitée et du manque de support pour leur révision.

Le Conseil canadien des normes exige que les organismes accrédités d'élaboration de normes, tel que l'ONGC, effectue régulièrement un examen des normes consensuelles afin de déterminer s'il y a lieu d'en renouveler l'approbation, de les réviser ou de les retirer. Le cycle d'examen d'une norme est généralement de cinq ans à partir de la date de publication de la dernière édition de celle-ci.

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Des copies archivées des normes retirées peuvent être obtenues à des fins historiques ou archivistiques auprès du Centre des ventes de l'ONGC. Il suffit d'en faire la demande par téléphone au 819-956-0425 ou 1-800-665-2472, par télécopieur au 819-956-5740, par Internet à : www.tpsgc-pwgsc.gc.ca/ongc-cgsb/, par courriel à ncr.CGSB-ONGC@tpsgc-pwgsc.gc.ca, ou par courrier adressé au Centre des ventes, Office des normes générales du Canada, 11, rue Laurier, Gatineau, Canada K1A 1G6.

CAN/CGSB-1.5-M91

Low Flash Petroleum Spirits Thinner (ICS 87.040)

CAN/CGSB-1.5-M91

Diluant, essence minérale à faible point d'éclair (ICS 87.040)

CAN/CGSB-1.28-98

Exterior Alkyd House Paint (ICS 87.040)

CAN/CGSB-1.28-98

Peinture aux résines alkydes d'extérieur pour bâtiments (ICS 87.040)

CAN/CGSB-1.36-97

General Purpose Interior Alkyd Varnish (ICS 87.040)

CAN/CGSB-1.36-97

Vernis d'intérieur aux résines alkydes d'usage général (ICS 87.040)

CAN/CGSB-1.38-2000

Interior Enamel Undercoater (ICS 87.040)

CAN/CGSB-1.38-2000

Peinture-émail d'intérieur, pour couche de fond (ICS 87.040)

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Anticorrosive Structural Steel Alkyd Primer (ICS87.040)

CAN/CGSB-1.40-97

Peinture pour couche primaire anticorrosion, aux résines alkydes, pour acier de construction (ICS 87.040)

CAN/CGSB-1.57-2003

Interior Alkyd Semigloss Enamel (ICS 87.040)

CAN/CGSB-1.57-2003

Peinture-émail, d'intérieur, semi-brillante, aux résines alkydes (ICS 87.040)

CAN/CGSB-1.59-97

Alkyd Exterior Gloss Enamel (ICS 87.040)

CAN/CGSB-1.59-97

Peinture-émail, d'extérieur, brillante, aux résines alkydes (ICS 87.040)

CAN/CGSB-1.60-97

Interior Alkyd Gloss Enamel (ICS 87.040)

CAN/CGSB-1.60-97

Peinture-émail brillante d'intérieur aux résines alkydes (ICS 87.040)

CAN/CGSB-1.61-2004

Exterior and Interior Marine Alkyd Enamel (ICS 87.040)

CAN/CGSB-1.69-98

Aluminum Paint (ICS 87.040)

1-GP-71 (Oct 1983)

Methods of Testing Paints and Pigments (ICS 87.040)

1-GP-71

Methods of Testing Paints and Pigments

No. 5-96

Drying Times of Paints and Related Coatings (ICS 87.040)

No. 38-96

Blushing Resistance of Lacquer Finishes (ICS 87.040)

No. 73-96

Beilstein Test for Chlorinated Solvents (ICS 87.040)

CAN/CGSB-1.73-97

Exterior and Interior Enamel for Floors (ICS 87.040)

CAN/CGSB-1.74-2001

Alkyd Traffic Paint (ICS 87.040)

CAN/CGSB-1.76-2000

Interior and Exterior Heat-Resistant Enamel (ICS 87.040)

CAN/CGSB-1.81-M90

Air Drying and Baking Alkyd Primer for Vehicles and Equipment (ICS 87.040)

CAN/CGSB-1.84-M91

Alkyd Primer for Hardwood (ICS 87.040)

CAN/CGSB-1.61-2004

Peinture-émail aux résines alkydes, d'extérieur et d'intérieur, marine (ICS 87.040)

CAN/CGSB-1.69-98

Peinture à l'aluminium (ICS 87.040)

1-GP-71 (oct. 1983)

Méthodes d'essai des peintures et pigments (ICS 87.040)

1-GP-71

Méthodes d'essai des peintures et pigments

N° 5-96

Durée de séchage des peintures et revêtements apparentés (ICS 87.040)

N° 38-96

Résistance à l'opalescence des produits-laque de finition (ICS 87.040)

N° 73-96

Détermination de la présence de solvants chlorés par l'essai de Beilstein (ICS 87.040)

CAN/CGSB-1.73-97

Peinture-émail d'extérieur et d'intérieur, pour sols (ICS 87.040)

CAN/CGSB-1.74-2001

Peinture alkyde de démarcation routière (ICS 87.040)

CAN/CGSB-1.76-2000

Peinture-émail résistant à la chaleur, d'intérieur et d'extérieur (ICS 87.040)

CAN/CGSB-1.81-M90

Peinture pour couche primaire aux résines alkydes, séchant à l'air ambiant et au four, pour véhicules automobiles et équipement (ICS 87.040)

CAN/CGSB-1.84-M91

Peinture d'impression aux résines alkydes, pour bois dur (ICS 87.040)

CAN/CGSB-1.88-92

Gloss Alkyd Enamel, Air Drying and Baking (ICS 87.040)

CAN/CGSB-1.88-92

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CAN/CGSB-1.100-99

Interior Flat Latex Paint (ICS 87.040)

CAN/CGSB-1.100-99

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CAN/CGSB-1.104-M91

Semigloss Alkyd Air Drying and Baking Enamel (ICS 87.040)

CAN/CGSB-1.104-M91

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CAN/CGSB-1.105-M91

Quick-Drying Primer (ICS 87.040)

CAN/CGSB-1.105-M91

Peinture pour couche primaire à séchage rapide (ICS 87.040)

CAN/CGSB-1.114-M91

Quick-Drying Flat Enamel (ICS 87.040)

CAN/CGSB-1.114-M91

Peinture-émail mate à séchage rapide (ICS 87.040)

CAN/CGSB-1.118-95

Interior Flat Alkyd Finish (ICS 87.040)

CAN/CGSB-1.118-95

Peinture de finition mate d'intérieur aux résines alkydes (ICS 87.040)

CAN/CGSB-1.119-2000

Interior Latex Primer-Sealer (ICS 87.040)

CAN/CGSB-1.119-2000

Peinture-émulsion d'impression d'intérieur (ICS 87.040)

CAN/CGSB-1.122-99

Anticorrosive Vinyl Primer (ICS 87.040)

CAN/CGSB-1.122-99

Peinture pour couche primaire, aux résines vinyliques, anticorrosion (ICS 87.040)

CAN/CGSB-1.132-M90

Zinc Chromate Primer, Low Moisture Sensitivity (ICS 87.040)

CAN/CGSB-1.132-M90

Peinture pour couche primaire, au chromate de zinc, à faible sensibilité à l'humidité (ICS 87.040)

CAN/CGSB-1.135-99

Flat Alkyd Enamel for Equipment (ICS 87.040)

CAN/CGSB-1.135-99

Peinture-émail mate aux résines alkydes pour équipement (ICS 87.040)

CAN/CGSB-1.138-97

Exterior Latex Flat Paint (ICS 87.040)

CAN/CGSB-1.138-97

Peinture-émulsion (latex) mate, d'extérieur (ICS 87.040)

CAN/CGSB-1.143-98

Silicone Alkyd Heat-Resistant Aluminum Enamel (ICS 87.040)

CAN/CGSB-1.143-98

Peinture-émail aux résines silicones-alkydes résistante à la chaleur (ICS 87.040)

CAN/CGSB-1.145-97

Solvent-Based Pigmented Stain (ICS 87.040)

CAN/CGSB-1.146-99

Cold Curing, Gloss Epoxy Coating (ICS 87.040)

CAN/CGSB-1.150-M91

Clear Lacquer for Wood Furniture (ICS 87.040)

CAN/CGSB-1.153-2000

High-Build, Gloss Epoxy Coating (ICS 87.040)

CAN/CGSB-1.154-M89

Latex Type Paint for Concrete Floors (ICS 87.040)

CAN/CGSB-1.158-M89

Cellulose Nitrate Primer, Modified Alkyd Type (ICS 87.040)

CAN/CGSB-1.159-92

Acrylic Cellulose Nitrate Gloss Lacquer (ICS 87.040)

CAN/CGSB-1.160-93

Low Gloss Acrylic Cellulose Nitrate Lacquer (ICS 87.040)

CAN/CGSB-1.162-2004

Emulsion Coating for Stucco and Masonry (ICS 87.040)

CAN/CGSB-1.165-2004

Cold-Curing Epoxy Primer (ICS 87.040)

CAN/CGSB-1.171-98

Inorganic Zinc Coating (ICS 87.040)

CAN/CGSB-1.175-97

Polyurethane Interior Coating (ICS 87.040)

CAN/CGSB-1.145-97

Teinture pigmentée à base de solvant (ICS 87.040)

CAN/CGSB-1.146-99

Revêtement aux résines époxydiques, durcissant à froid, brillant (ICS 87.040)

CAN/CGSB-1.150-M91

Vernis-laque pour meubles en bois (ICS 87.040)

CAN/CGSB-1.153-2000

Revêtement par peinture aux résines époxydiques, à pouvoir garnissant élevé, brillant (ICS 87.040)

CAN/CGSB-1.154-M89

Peinture-émulsion (latex) pour sols en béton (ICS 87.040)

CAN/CGSB-1.158-M89

Peinture-laque pour couche primaire, au nitrate de cellulose et aux résines alkydes modifiées (ICS 87.040)

CAN/CGSB-1.159-92

Produit-laque brillant à la résine acrylique et au nitrate de cellulose (ICS 87.040)

CAN/CGSB-1.160-93

Peinture-laque aux résines acryliques et au nitrate de cellulose, peu brillante (ICS 87.040)

CAN/CGSB-1.162-2004

Revêtement de type émulsion pour stuc et maçonnerie (ICS 87.040)

CAN/CGSB-1.165-2004

Peinture pour couche primaire aux résines époxydiques, durcissant à froid (ICS 87.040)

CAN/CGSB-1.171-98

Enduit au zinc minéral (ICS 87.040)

CAN/CGSB-1.175-97

Revêtement de polyuréthane d'intérieur (ICS 87.040)

CAN/CGSB-1.176-2000

Interior Clear Moisture-Curing Polyurethane Coating (ICS 87.040)

CAN/CGSB-1.177-M91

Two-Component Polyurethane Coating, Resistant to Chalking and Yellowing (ICS 87.040)

1-GP-180Ma (Feb 1996)

Coating, Polyurethane, Two-Package, General Purpose (ICS 87.040)

CAN/CGSB-1.181-99

Ready-Mixed Organic Zinc-Rich Coating (ICS 87.040)

CAN/CGSB-1.183-99

Zinc-Rich Epoxy Coating (ICS 87.040)

CAN/CGSB-1.184-98

Coal Tar-Epoxy Coating (ICS 87.040)

CAN/CGSB-1.188-2004

Emulsion Filler for Masonry Block (ICS 87.040)

CAN/CGSB-1.189-2000

Exterior Alkyd Primer for Wood (ICS 87.040)

CAN/CGSB-1.190-M90

Sanding Type Primer Surfacer (ICS 87.040)

1-GP-191M (Apr 1980)

Enamel, Automotive Refinishing, Fast Drying, Gloss (ICS 87.040)

1-GP-192Ma (Feb 1985)

Deck Coating, Nonslip, Epoxy (ICS 87.040)

CAN/CGSB-1.176-2000

Revêtement de polyuréthane, d'intérieur, durci à l'humidité, non pigmenté (ICS 87.040)

CAN/CGSB-1.177-M91

Revêtement de polyuréthane, à deux constituants séparés, non jaunissant et non farinant (ICS 87.040)

1-GP-180Ma (févr. 1996)

Revêtement de polyuréthanne, à deux constituants séparés, pour utilisation générale (ICS 87.040)

CAN/CGSB-1.181-99

Enduit riche en zinc, organique et préparé (ICS 87.040)

CAN/CGSB-1.183-99

Enduit aux résines époxydiques, riche en zinc (ICS 87.040)

CAN/CGSB-1.184-98

Revêtement à base de goudron de houille-résines époxydiques (ICS 87.040)

CAN/CGSB-1.188-2004

Apprêt-émulsion pour blocs de maçonnerie (ICS 87.040)

CAN/CGSB-1.189-2000

Peinture d'impression, d'extérieur, aux résines alkydes, pour le bois (ICS 87.040)

CAN/CGSB-1.190-M90

Peinture pour couche primaire surfaçante de type ponçable (ICS 87.040)

1-GP-191M (avr. 1980)

Peinture-émail brillante, à séchage rapide, pour le repeinturage des carrosseries de véhicules automobiles (ICS 87.040)

1-GP-192Ma (févr. 1985)

Revêtement de pont, antidérapant, aux résines époxydiques (ICS 87.040)

CAN/CGSB-1.193-99

High-Build Epoxy Marine Coating (ICS 87.040)

CAN/CGSB-1.195-99

Interior Latex Semigloss Paint (ICS 87.040)

CAN/CGSB-1.198-2001

Cementitious Primer for Galvanized Surfaces (ICS 87.040)

1-GP-200Ma (Jan 1985)

Deck Coating, Nonslip, Polyurethane (ICS 87.040)

CAN/CGSB-1.202-2003

Interior Alkyd Low Gloss Enamel (ICS 87.040)

CAN/CGSB-1.203-2003

Exterior Latex Wood Primer (ICS 87.040)

CAN/CGSB-1.204-98

Exterior Latex Pigmented Stain (ICS 87.040)

CAN/CGSB-1.205-2003

Sealer for Application to Asbestos-Fibre Releasing Materials (ICS 87.040)

CAN/CGSB-1.207-98

Low-Temperature Curing Epoxy Coating (ICS 87.040)

CAN/CGSB-1.208-99

Marine Interior Water-Borne Gloss Enamel (ICS 87.040)

CAN/CGSB-1.209-2003

Interior Latex Low Gloss Paint (ICS 87.040)

CAN/CGSB-1.210-2003

Quick-Drying Alkyd Primer for Structural Steel (ICS 87.040)

CAN/CGSB-1.193-99

Revêtement aux résines époxydiques, à pouvoir garnissant élevé, marin (ICS 87.040)

CAN/CGSB-1.195-99

Peinture-émulsion semi-brillante d'intérieur (ICS 87.040)

CAN/CGSB-1.198-2001

Peinture primaire additionnée de ciment, pour surfaces galvanisées (ICS 87.040)

1-GP-200Ma (janv. 1985)

Revêtement de pont, antidérapant, aux résines polyuréthannes (ICS 87.040)

CAN/CGSB-1.202-2003

Peinture-émail d'intérieur, aux résines alkydes, peu brillante (ICS 87.040)

CAN/CGSB-1.203-2003

Peinture-émulsion (latex) d'impression extérieure, pour bois (ICS 87.040)

CAN/CGSB-1.204-98

Teinture-émulsion pigmentée pour extérieur (ICS 87.040)

CAN/CGSB-1.205-2003

Peinture d'obturation pour matériaux renfermant des fibres d'amiante (ICS 87.040)

CAN/CGSB-1.207-98

Revêtement aux résines époxydiques durcissant à basse température (ICS 87.040)

CAN/CGSB-1.208-99

Peinture-émail brillante en suspension aqueuse, marine, d'intérieur (ICS 87.040)

CAN/CGSB-1.209-2003

Peinture-émulsion d'intérieur peu brillante (ICS 87.040)

CAN/CGSB-1.210-2003

Peinture primaire aux résines alkydes à séchage rapide pour acier de charpente (ICS 87.040)

CAN/CGSB-1.211-95

Coating Systems for Marine Floating Navigational Aids (Buoys) (ICS 87.040)

CAN/CGSB-1.212-2004

Heavy-Metal-Free Marine Primer for Steel and Light-Alloy Surfaces (ICS 87.040)

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Etch Primer (Pretreatment Coating or Tie Coat) for Steel and Aluminum (ICS 87.040)

CAN/CGSB-1.214-2004

Heavy-Metal-Free, Water-Borne, Marine Primer for Steel and Light-Alloy Surfaces (ICS 87.040)

CAN/CGSB-1.215-96

Two-Package Epoxy Blockfiller (ICS 87.040)

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Exterior Water-Borne Gloss Enamel (ICS 87.040)

CAN/CGSB-1.219-2001

Lead and Chromate-Free Waterborne Traffic Paint (ICS 87.040)

CAN/CGSB-1.220-2001

Lead and Chromate-Free Alkyd Traffic Paint (ICS 87.040)

CAN/CGSB-1.223-2004

Heavy-Metal-Free, Water-Borne Wash Primer-Tie Coat (ICS 87.040)

CAN/CGSB-1.300-2000

Applied Coating System of Semigloss Baked Finish for Metal Office Furniture (ICS 87.040)

CAN/CGSB-1.500-75

Methods for Test for Toxic Trace Elements in Protective Coatings (ICS 87.040)

CAN/CGSB-1.211-95

Systèmes de revêtement pour aides à la navigation flottantes (bouées) (ICS 87.040)

CAN/CGSB-1.212-2004

Peinture primaire sans métal lourd, marine, pour surfaces en acier et en alliage léger (ICS 87.040)

CAN/CGSB-1.213-2004

Peinture primaire réactive (enduit de traitement préliminaire ou couche de liaison) pour l'acier et l'aluminium (ICS 87.040)

CAN/CGSB-1.214-2004

Peinture primaire, sans métal lourd, en suspension aqueuse, marine, pour surfaces en acier et en alliage léger (ICS 87.040)

CAN/CGSB-1.215-96

Apprêt pour blocs aux résines époxydiques en deux constituants (ICS 87.040)

CAN/CGSB-1.216-97

Peinture-émail brillante d'extérieur en suspension aqueuse (ICS 87.040)

CAN/CGSB-1.219-2001

Peinture à l'eau de démarcation routière sans plomb ni chromate (ICS 87.040)

CAN/CGSB-1.220-2001

Peinture alkyde de démarcation routière sans plomb ni chromate (ICS 87.040)

CAN/CGSB-1.223-2004

Peinture primaire réactive – Couche de liaison, sans métal lourd, en suspension aqueuse (ICS 87.040)

CAN/CGSB-1.300-2000

Système de revêtement de finition semi-brillant, cuit au four, pour meubles métalliques de bureau (ICS 87.040)

CAN/CGSB-1.500-75

Méthodes d'essai des éléments toxiques à l'état de trace dans les revêtements protecteurs (ICS 87.040)

CAN/CGSB-1.501-M89

Method for Permeance of Coated Wallboard (ICS 87.040)

CAN/CGSB-1.501-M89

Méthode de détermination de la perméance des panneaux muraux revêtus (ICS 87.040)

CGSB ONGC

Canadian
General
Standards
Board

CAN/CGSB-1.184-98

Supersedes 1-GP-184Ma
November 1983

Coal Tar-Epoxy Coating

National Standard of Canada

Canada

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Although the intended primary application of this standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the standard to judge its suitability for their particular purpose.

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The Manager
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K1A 1G6

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The principal objectives of the Council are to foster and promote voluntary standardization as a means of advancing the national economy, benefiting the health, safety and welfare of the public, assisting and protecting the consumer, facilitating domestic and international trade, and furthering international co-operation in the field of standards.

A National Standard of Canada is a standard which has been approved by the Standards Council of Canada and one which reflects a reasonable agreement among the views of a number of capable individuals whose collective interests provide, to the greatest practicable extent, a balance of representation of producers, users, consumers and others with relevant interests, as may be appropriate to the subject in hand. It normally is a standard that is capable of making a significant and timely contribution to the national interest.

Approval of a standard as a National Standard of Canada indicates that a standard conforms to the criteria and procedures established by the Standards Council of Canada. Approval does not refer to the technical content of the standard; this remains the continuing responsibility of the accredited standards-development organization.

Those who have a need to apply standards are encouraged to use National Standards of Canada whenever practicable. These standards are subject to periodic review; therefore, users are cautioned to obtain the latest edition from the organization preparing the standard.

The responsibility for approving National Standards of Canada rests with the:

Standards Council of Canada
45 O'Connor Street
Suite 1200
Ottawa, Ontario
K1P 6N7

NATIONAL STANDARD OF CANADA

CAN/CGSB-1.184-98

Supersedes 1-GP-184Ma
November 1983

COAL TAR-EPOXY COATING

Prepared by the
Canadian General Standards Board CGSB

Approved by the
Standards Council of Canada

Published August 1998 by the
Canadian General Standards Board
Ottawa, Canada K1A 1G6

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Smedmor, S.		Saint John Shipbuilding Ltd.
Tibbets, F.F.		Tibbetts Paints Ltd.
Williams, R.		The Sherwin-Williams Co.
Craig, W.	*Secretary*	Canadian General Standards Board

Acknowledgment is made for the translation of this National Standard of Canada by the Translation Bureau of Public Works and Government Services Canada.

Supersedes 1-GP-184Ma
November 1983

CANADIAN GENERAL STANDARDS BOARD

COAL TAR-EPOXY COATING

1. SCOPE

1.1 This standard applies to cold-curing, two-component, coal tar-epoxy coatings intended for the protection of clean concrete, metal and wood surfaces that are exposed to extremely corrosive conditions.

1.2 The coal tar-epoxy coatings are suitable for application in thick coats by spray (airless and conventional) and roller, and for touch-up by brush. They are intended for interior and exterior use on substrates exposed to environments involving non-potable fresh water or sea water immersion, tidal and splash zone exposure, high humidity, condensation, brine and crude oil. Although these coatings are intended mainly for use on steel, they may be used on suitably prepared galvanized steel and aluminum as well as wood, masonry and concrete surfaces.

1.3 Type 1 coating is preferred for use on below-ground applications and on surfaces exposed to alkalis, chemical fumes, chemical splashings and moderate concentrations of acids.

1.4 Type 2 coating is generally preferred in the interior of tanks and other inaccessible areas, where visibility may be limited. The aluminum colour thus permits easier inspection and rust detection and is occasionally applied as the alternating coat in a multi-coat application for colour differentiation. In addition, it may be used where esthetics are of major importance or where a colour other than black is required.

1.5 The testing and evaluation of a product against this standard may require the use of materials and/or equipment that could be hazardous. This document does not purport to address all the safety aspects associated with its use. Anyone using this standard has the responsibility to consult the appropriate authorities and to establish appropriate health and safety practices in conjunction with any applicable regulatory requirements prior to its use.

2. REFERENCED PUBLICATIONS

2.1 The following publications are referenced in this standard:

2.1.1 Canadian General Standards Board (CGSB)

1-GP-71 — Methods of Testing Paints and Pigments

CAN/CGSB-1.197 — Thinner for Epoxy Coatings

CAN/CGSB-8.1 — Sieves, Testing, Woven Wire, Inch Series.

2.1.2 Health Canada

Hazardous Products (Liquid Coating Materials) Regulations.

2.1.3 American Society for Testing and Materials (ASTM)

D 185 — Standard Test Methods for Coarse Particles in Pigments, Pastes, and Paints

D 1210 — Standard Test Method for Fineness of Dispersion of Pigment-Vehicle Systems by Hegman-Type Gage

D 1212 — Standard Test Methods for Measurement of Wet Film Thickness of Organic Coatings

D 5894 — Standard Practice for Cyclic Salt Fog UV Exposure of Painted Metal Alternating Exposure in a Fog Dry Cabinet and a UV Condensation Cabinet.

2.2 A reference to a regulation is always to the latest issue. A dated reference is to the issue specified. An undated reference is to the latest issue unless otherwise specified by the authority applying the standard. The sources are given in the Notes section.

3. CLASSIFICATION

3.1 The coating shall be supplied in the following types, as specified (par. 8.1):

3.1.1 ***Types***

Type 1 — Coal tar-epoxy (black)

Type 2 — Coal tar-epoxy (aluminum).

4. GENERAL REQUIREMENTS

4.1 The coating shall be a two-component material consisting of coal tar-epoxy resin and curing agent(s). The Type 2 coating shall also contain a leafing aluminum pigment. The distribution of the ingredients between the components is left to the discretion of the manufacturer, provided that the components, when adequately mixed and allowed to stand in accordance with the manufacturer's instructions, produce a coating complying with the requirements of this standard.

4.2 The addition of ingredients such as antisettling, thickening and flow agents is not permitted.

4.3 When applied by spray, roller or brush, within 4 h after mixing and at temperatures between 15 and 30°C, the coating shall produce a protective film of approximately 200 µm dry film thickness per coat without sags or runs.

4.4 The components, as received and when stored in their respective original unopened containers for one year at temperatures ranging between 5 and 40°C, shall be readily mixed together, as described in par. 4.1, the coating shall meet the requirements for applicability and appearance (par. 5.16).

4.5 **Toxic Elements** — The coating shall be manufactured in accordance with the requirements of the Hazardous Products (Liquid Coating Materials) Regulations in respect to designated toxic elements.

4.6 Since this product may contain carcinogenic compounds, safety precautions for its use shall be fully detailed on the product label.

5. DETAILED REQUIREMENTS

The coating shall comply with the following detailed requirements when mixed in accordance with the manufacturer's instructions and tested or applied for test within 1/2 h to 3 h after mixing.

		Min.	Max.	Test Method CGSB 1-GP-71	Test Method ASTM
5.1	Drying time				
	Surface dry, h	—	18	5[1] Method A	
	Dry for recoat, h	—	24	5[1] Method A	
	Complete cure, d	—	7	Par. 7.2.10	
5.2	Volatile matter, % by mass	—	30	17.1[2]	
5.3	Consistency, Kreb units	100	—	4.5	
5.4	Fineness of grind, Hegman	2	—	—	D 1210
5.5	Coarse particles retained on 45 µm sieve,[3] % by mass (Type 2 only)	—	0.5	—	D 185
5.6	Metallic aluminum, % by mass of mixed components (Type 2 only)	—	6	21.1 (mixture A)	

[1] *Except that the wet film thickness shall be* 250 µm.

[2] *The volatile matter is determined in accordance with CGSB standard 1-GP-71, Method 17.1 on each component or on the mixed material. When performed on the individual components, the volatile matter of the material ready for use is calculated for the mixture obtained when the components are combined in the proportions recommended by the manufacturer.*

[3] *See CAN/CGSB-8.1 Sieves, Testing, Woven Wire, Inch Series.*

5.7 **Sagging** — The coating shall show no evidence of sagging or flowing back over the uncoated area when applied at a wet film thickness of 300 ± 25 µm in accordance with par. 7.2.2.

5.8 **Pot Life** — The mixed components shall remain of a consistency suitable for application for a minimum period of 4 h when held at 23 ± 2°C (room temperature) (par. 7.2.3). The mixed components shall remain lump-free and brushable when thinned with a maximum of 10% by volume of thinner.

5.9 **Flexibility** — The cured film shall show no cracking or peeling when subjected to the bending test using a 170 mm outside diameter pipe (par. 7.2.4).

5.10 **Adhesion** — The cured film shall show good adhesion to steel and good intercoat adhesion after several cuts, 6 mm apart, are made in the cured film (par. 7.2.5).

5.11 **Impact Resistance (Direct)**

5.11.1 ***At Room Temperature*** (23 ± 2°C) — The cured film shall show no loosening, cracking, flaking or chipping when subjected to an impact of 2.25 J at room temperature (par. 7.2.6.1).

5.11.2 ***At 0°C*** — The cured film shall show no flaking, loosening, cracking or chipping when subjected to an impact of 1.13 J at 0°C in accordance with par. 7.2.6.2.

5.12 **Salt Spray Resistance** — Films on scored and unscored steel panels shall show no evidence of blistering, loss of adhesion, softening or other defects when exposed in the salt spray cabinet for 50 d in accordance with par. 7.2.7. There shall be no corrosion on the unscored panels and not more than 3 mm undercreep at the score line of the scored panels. (The top and bottom 6 mm of the panels shall be disregarded).

5.13 **Resistance to Salt Water and Aromatic Fuel** — The cured film shall show no blistering, loss of adhesion or more than slight softening, and there shall be no corrosion of the substrate when coated panels are exposed 21 d in aerated synthetic sea water followed by 7 d of immersion in aromatic fuel (par. 7.2.8).

5.14 **Hot Water Immersion** — The cured film shall show no blistering or loss of adhesion and there shall be no corrosion of the substrate when immersed 40 d in water at 60 ± 2°C (par. 7.2.9). Dulling shall be disregarded.

5.15 **Alkali Resistance** — The cured film shall withstand the action of 10% sodium hydroxide for 21 d without softening, blistering, wrinkling, loss of adhesion or more than a slight colour change when tested in accordance with CGSB standard 1-GP-71, Method 106.1. For Type 2, disregard colour change.

5.16 **Applicability and Appearance**

5.16.1 ***Brushing*** — The coating shall spread and join well and shall show no excessive pull under the brush. When dry, the film shall be free from sags and runs and shall show no excessive brush marks or other defects.

5.16.2 ***Spraying*** — The coating shall be suitable for spray application and shall show no sag, creep or run when applied with a spray gun, as recommended by the manufacturer.

5.16.3 ***Rolling*** — When applied by roller, the coating shall have good working properties without sagging, pinholing, lack of uniformity or other defects.

5.16.4 ***Recoating*** — When applied by rolling, brushing or spraying, a second coat of the coating shall show no cratering, sagging or running after the first coat has been allowed to dry for 24 h. If slick occurs, it shall be removed (par. 8.3.3).

5.16.5 ***Appearance of Dry Film*** — When tested in accordance with par. 7.2.11, the coating shall dry to a smooth, uniform film, free from grit, craters, pinholes, bloom, blisters or other surface imperfections.

6. PREPARATION FOR DELIVERY

6.1 Unless otherwise specified (par. 8.1), preparation for delivery shall conform to normal commercial practice.

6.2 **Labelling** — In addition to complying with the labelling requirements of any relevant Acts or Regulations, each container shall be suitably labelled to show the following information:

Manufacturer's name and address

Name and type of material

Standard number: CAN/CGSB-1.184-98

NATO stock number (if applicable)

Manufacturer's batch number

Manufacturer's code number (if applicable)

Date of manufacture

Detailed mixing and application instructions

Instructions for cleaning brushes, spray equipment and tools with epoxy thinner conforming to CAN/CGSB-1.197 or, if desired, the manufacturer's recommended thinner.

7. INSPECTION

7.1 **Sampling** — Sampling shall be carried out in accordance with CGSB standard 1-GP-71, Method 1.1.

7.2 **Testing**

7.2.1 ***Panel Preparation*** — Apply two coats of the coating to steel panels prepared as outlined in CGSB standard 1-GP-71, Method 100.2, at a dry film thickness of 200 ± 25 µm per coat. Allow the first coat to dry for 24 h and the second coat for 7 d (CGSB 1-GP-71, Method 103.1) unless otherwise specified in the method. Prior to applying the second coat, examine the film of the first coat for presence of slick (an oiliness or stickiness of the surface). If present, wash it off with a solution of one part methyl alcohol in nine parts water. For salt spray and immersion tests, protect the backs and edges of the panels with several coats of bituminous paint or the coating under test.

7.2.2 ***Sag Resistance*** — Press a strip of 25 mm wide masking tape across the full width of a solvent-cleaned 75 × 150 mm cold-rolled steel panel, parallel to and centred on the shorter axis of the panel. Apply the mixed coating to the panel by spray at a wet film thickness of 300 ± 25 µm as measured with a wet film thickness gauge (ASTM D 1212). Immediately after applying the coating, carefully remove the masking tape and stand the panel in a vertical position, with the bare strip horizontal, in a conditioned room (CGSB 1-GP-71, Method 103.1). After 4 h examine the panel for sagging or running into the bare area.

7.2.3 ***Pot Life of the Mixed Coating*** — Fill a 500 mL paint can with freshly mixed coating, seal tightly, store at 23 ± 2°C for 4 h, and examine the coating for consistency and applicability. Then thin the coating with not more than 10% of thinner conforming to CAN/CGSB-1.197 and assess for condition and brushability.

7.2.4 ***Flexibility of the Cured Film*** — Mix the components in the proportions supplied, or in accordance with the manufacturer's instructions, then apply by brush one coat to three 65 × 450 × 3 mm steel panels (CGSB 1-GP-71, Method 100.2) at a dry film thickness of 200 ± 25 µm. Allow the panels to cure for 7 d at 23 ± 2°C (CGSB 1-GP-71, Method 103.1); then force cure for 24 h at 55°C. Bring the panels to room temperature (CGSB 1-GP-71, Method 103.1) for 1 h then, with the film side up and in a time interval of 1 to 1.5 s, bend through 180° over a 170 mm outside diameter pipe. Examine the bend for cracks using 10X magnification, disregarding cracks at edges that extend no further than 6 mm.

7.2.5 ***Adhesion*** — Test the coating, on panels prepared as outlined in par. 7.2.1 for adhesion to the substrate and also for intercoat adhesion. Test for adhesion by cutting two straight lines 6 mm apart through the coating to the steel, with a sharp scalpel, followed by another two cuts 6 mm apart and perpendicular to the first two. If adhesion is poor, the film between these cuts can be readily lifted with the scalpel. A microscope or a magnifier is a necessary aid in this test.

7.2.6 ***Impact Resistance***

7.2.6.1 *At Room Temperature* (23 ± 2°C) — Prepare and cure the panels as outlined in par. 7.2.1, except use phosphated steel panels (CGSB 1-GP-71, Method 100.3). Determine the direct (coated side) impact resistance (CGSB 1-GP-71, Method 147.1) at room temperature (CGSB 1-GP-71, Method 103.1) by means of a variable impact tester with a ring inlay having a 15.8 mm opening. After the film in the impact area has been subjected to the specified impact, examine it for any defects under 10X magnification.

7.2.6.2 *At 0°C* — Place the panels, prepared as outlined in par. 7.2.6.1, and the apparatus in the cold chamber maintained at 0° ± 2°C. After the panels are conditioned for at least 3 h, carry out the direct (coated side) impact resistance in the cold chamber as in par. 7.2.6.1.

7.2.7 ***Salt Spray Resistance*** — Prepare at least six panels as outlined in par. 7.2.1 and condition them for 7 d. On three of the panels, cut an X to bright metal from corner to corner, by holding a sharp knife at an angle of 30° to the panel, with the plane of the blade perpendicular to the panel and lying in the direction of the cut. Immediately expose all six panels for 50 d in a salt spray cabinet in accordance with ASTM D 5894. After exposure, examine the panels for compliance with the requirements of par. 5.12.

7.2.8 ***Resistance to Salt Water and Aromatic Fuel*** — Prepare at least two panels as outlined in par. 7.2.1. Seven days after the application of the second coat, totally immerse the coated panels for 21 d in aerated synthetic sea water prepared in accordance with CGSB standard 1-GP-71, Method 113.2. Immediately after this immersion period, examine the panels for defects; then totally immerse them for 7 d in standard hydrocarbon test fluid contained in a covered beaker at a temperature of 23 ± 2°C. The composition of the test fluid (% by volume) shall be as follows: Iso-octane - 60 Toluene - 25 and Xylene - 15. After the immersion period, examine the panels for compliance with the requirements in par. 5.13.

7.2.9 ***Hot Water Immersion*** — Totally immerse at least two panels, prepared, coated and dried as described in par. 7.2.1, for 40 d in a hot reagent water bath maintained at 60 ± 2°C. After the immersion period, examine the panels for blistering, loss of adhesion and corrosion of the substrate, disregarding any dulling.

7.2.10 ***Complete Cure*** — Use CGSB 1-GP-71, No. 5, Method C, except that one coat of the coating shall be applied at a dry film thickness of 200 ± 25 µm, and the solvent, to determine the degree of cure, shall be toluene in lieu of methyl isobutyl ketone. Allow the solvent to remain in contact with the film for 15 min, after which time there shall be no blistering, wrinkling or lifting, and not more than slight softening. After a 6 h recovery period the exposed film shall have regained its hardness.

7.2.11 ***Applicability and Appearance***

7.2.11.1 *Brushing Properties* — Vertically mount a cleaned, degreased 600 × 900 mm cold-rolled steel panel approximately 0.75 mm thick. Using a 75 mm brush, apply the coating at a wet film thickness of approximately 250 µm. Apply the coating in horizontal strokes and finish off with vertical strokes. Note whether the coating spreads and laps well and whether it pulls under the brush. Allow the coating to dry 24 h and inspect the dry film.

7.2.11.2 *Spraying Properties*[4] — Place another steel panel described in par. 7.2.11.1 in a vertical position. Adjust the flow and gun distance from the panel so that the spray pattern is smooth, level and uniform. Apply the coating at a wet film thickness of 300 ± 25 µm. Examine the film when wet, and after drying vertically for 24 h.

7.2.11.3 *Rolling Properties* — Mount another steel panel (par. 7.2.11.1) and apply the mixed coating by roller to the whole panel to obtain a wet film thickness of approximately 250 µm. Examine the film when wet and after drying vertically for 24 h.

7.2.11.4 *Recoating Properties* — After drying the three panels prepared above (par. 7.2.11.1, 7.2.11.2 and 7.2.11.3) for 24 h, apply a second coat in the same manner to each respective panel. Inspect immediately after application and again after drying vertically for 24 h.

[4] *The spray gun and air tip used for this test shall be of a type recommended by the manufacturer.*

8. NOTES

8.1 **Options** — The following options must be specified in the application of this standard:

a. Type of coating (par. 3.1)

b. Preparation for delivery, if other than as specified (par. 6.1).

8.2 **Recommended Practice**

8.2.1 On exterior applications, chalking will occur upon weathering. Appearance can be improved by applying other finishes as recommended by the manufacturer.

8.2.2 These coatings perform best when the steel is blast cleaned. All surfaces should be free from dirt, grease and loose materials.

8.3 **Instructions for Use**

8.3.1 The coal tar-epoxy coatings shall be used in accordance with the manufacturer's instructions. Regardless of stated pot-life, fresh coating shall not be mixed with previously mixed coating. The coating shall be applied only at temperatures between 15 and 30°C and relative humidities below 80%.

8.3.2 A minimum of two coats should be applied, by spray (airless or conventional) or roller to yield a total minimum dry film thickness of 400 µm in two coats. If an application by brush is needed, a heavily loaded natural bristle brush shall be used, with the coating being applied quickly and smoothly while avoiding excessive brushing. A minimum of 12 h and a maximum of 96 h drying time between coats shall be allowed under normal drying conditions. Long drying time between coats might cause poor intercoat adhesion and it is advisable, in very warm sunny weather, to reduce the maximum interval between coats to as little as 36 h.

8.3.3 With these coatings, slicks (an oiliness or stickiness of the surface of the film) may sometimes appear. It shall be washed off with a solution of one part methyl alcohol in nine parts of water, but care shall be taken to prevent staining of adjacent areas. Washing to remove the slick does not impair surface properties of the coating. Removal of the slick is especially important before recoating.

8.3.4 The coating contains volatile flammable solvents and proper precautions shall therefore be taken to eliminate the possibility of sparks or open flame being present during application and while the coating is drying. In addition, users shall take precautions to apply the coating under conditions of adequate ventilation and hygiene for protection of skin and health.

8.4 **Storage** — The coal tar-epoxy coating components shall be stored between 5 and 40°C.

8.5 **Equipment**

8.5.1 Natural bristle brushes and rollers conforming to CGSB specifications 22.1, 22.3 and 22.42 are recommended since most synthetic materials are attacked by the solvents used in the coal tar-epoxy coatings.

8.5.2 Care should be taken to clean equipment thoroughly at regular intervals and immediately after use with a thinner supplied by the manufacturer or with a thinner conforming to CAN/CGSB-1.197.

8.6 **Related Publications**

8.6.1 Canadian General Standards Board (CGSB)

22.1 — Flat Hog-Bristle Brushes for Paint, Varnish, Enamel and Lacquer

22.3 — Sash Brushes with Hog Bristles

22.42 — Paint Rollers and Accessories.

8.7 **Sources of Referenced Publications**

8.7.1 The publications referred to in par. 2.1.1 and 8.6.1 may be obtained from the Canadian General Standards Board, Sales Centre, Ottawa, Canada, K1A 1G6. Telephone (819) 956-0425 or 1-800-665-CGSB (Canada only). Fax (819) 956-5644.

8.7.2 The publication referred to in par. 2.1.2 may be obtained from Health Canada, Product Safety Bureau, Stastistics Canada Main Building, Room 1000, Tunney's Pasture, Ottawa, Ontario K1A 0K9. Telephone (613) 957-9545. Fax (613) 952-1994.

8.7.3 The publications referred to in par. 2.1.3 may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, U.S.A. or from the Global Info Centre Canada, 240 Catherine Street, Suite 305, Ottawa, Ontario K2P 2G8. Telephone (613) 237-4250 or (800) 854-7179. Fax (613) 237-4251.
